

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF HAWAII**

In The Matter Of the Application Of

HAWAIIAN ELECTRIC COMPANY, INC.

**for approval to commit funds in
excess of \$500,000 for Item Y48500,
East Oahu Transmission Project.**

DOCKET NO. 03-0417

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REPLY BRIEF OF HAWAIIAN ELECTRIC COMPANY, INC.

AND

CERTIFICATE OF SERVICE

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This Reply Brief is respectfully submitted on behalf of HAWAIIAN ELECTRIC COMPANY, INC. ("HECO") in response to the opening briefs filed by the Department of Commerce and Consumer Affairs, Division of Consumer Advocacy ("Consumer Advocate" or "CA") and Life of the Land ("LOL").

HECO's Opening Brief ("OB") filed February 13, 2006 generally addresses the contentions included in the other parties' Opening Briefs.¹ Therefore, this Reply Brief will not attempt to be all-inclusive, and will focus on those contentions that may warrant further response.

I. INTRODUCTION

Project Need

The need for the East Oahu Transmission Project ("EOTP" or "46kV Phased Project") is addressed in the first, third and fourth issues established for this proceeding.

¹ References to HECO's Opening Brief are intended to incorporate the references to the record and authorities cited in the Opening Brief. The citations generally will not be repeated in this Reply Brief for the sake of brevity.

The first issue is “[w]hether HECO’s proposed expenditures for Phases 1 and 2 of the East Oahu Transmission Project will provide facilities which are reasonably required to meet HECO’s present or future requirements for utility purposes?” The transmission line overload load situations and substation reliability concerns addressed by the proposed project were detailed in Part IV.A of HECO’s Opening Brief. The effectiveness of the project in addressing these problems was detailed in Part IV.B of HECO’s Opening Brief.

The third issue is “[w]hether HECO’s East Oahu Transmission Project is preferable to HECO’s other 138kV and 46kV transmission system alternatives, comparing factors such as, but not limited to the following: (a) Cost; (b) Timeliness and Schedule; (c) Effectiveness; (d) Construction impacts; (e) Electromagnetic fields; (f) Other impacts, if any; (g) Public sentiment; and (h) The public welfare in general?” The selection of the proposed project, and the consideration of other 138kV and 46kV options, were detailed in Parts IV.C and IV.D of HECO’s Opening Brief. Public sentiment, construction impacts and electromagnetic fields were discussed in Part VI of HECO’s Opening Brief.

The fourth issue is “[w]hether HECO’s East Oahu Transmission Project is preferable to other feasible non-transmission options?” HECO’s consideration of non-transmission options was detailed in Part IV.D of HECO’s Opening Brief.

The only other party that presented evidence regarding the transmission line overload situations and substation reliability concerns was the Consumer Advocate. The Consumer Advocate supports the need for the EOTP, with the exception of the Archer D transformer for Phase 2 of the project. As is addressed in HECO’s Opening Brief, and as is discussed below, the analysis done by the Consumer Advocate’s consultant to support his position that the Archer D transformer is not needed was incomplete and results in an incorrect conclusion. Installation of

Phase 2 without the fourth transformer at Archer Substation would be of limited benefit and would create a substation reliability concern.

LOL takes the position that renewable energy options are feasible and preferable options. As is discussed in HECO's Opening Brief and below, LOL failed to provide any details regarding its generalized claims, and the extensive testimonies and studies submitted by HECO, and the testimony of the Consumer Advocate's consultant, demonstrate that the non-transmission options are not viable, cost-effective alternatives to address the problems addressed by the EOTP.

Based on the reliable, substantial and probative evidence in the record, the EOTP will provide facilities that are "necessary or useful for public utility purposes", and will not provide facilities that "are unnecessary or are unreasonably in excess of probable requirements for public utility purposes" Thus, the commitment of expenditures for the project should be approved pursuant to paragraph 2.3(g)(2) of General Order No. 7.

Project Design

The second issue is "[w]hether HECO's selected routing, location, configuration and method of construction for Phases 1 and 2 of the East Oahu Transmission Project are reasonable?"

None of the parties that submitted testimony or participated in the evidentiary hearing have raised an issue with respect to the routing, location, configuration or method of construction for Phase 1 or Phase 2 of the project. The routing, location, configuration and method of construction were addressed in Part V and Exhibit "A" to HECO's Opening Brief, and steps taken to mitigate construction impacts and to apply prudent avoidance with respect to electromagnetic fields were addressed in Parts VI. C, and VI. D, respectively, of HECO's

Opening Brief. Comments received during the public input and environmental assessment phases of the project have been thoroughly considered and addressed by HECO, as discussed in Parts VI.A and VI.B, respectively, of HECO's Opening Brief.

Undergrounding 46kV Line Segments

The fifth and final issue is “[p]ursuant to the requirements of HRS § 269-27.6(a), whether all (as proposed by HECO) or part of the 46kV lines that are part of HECO's East Oahu Transmission Project should be placed, constructed, erected or built below the surface of the ground?”

There is no remaining issue regarding HECO's proposal to place underground all of the new 46kV line segments required for the project. As set forth in HECO's Opening Brief, it generally would not be practical or prudent to construct the proposed new 46kV circuits overhead, given State and City laws governing portions of the route, engineering considerations, the history of this project and probable opposition to overhead construction, and the pressing need to resolve the East Oahu transmission system concerns. If certain sections of the new 46kV circuits were proposed for overhead construction, the potential for significant project delays and increased costs would be great. Any potential savings in engineering and construction costs associated with an overhead line proposal could easily disappear if approvals and permits for the project were delayed. Installing the various 46kV circuits underground provides the best opportunity to meet the underlying need for this project in a timely and cost-effective manner.

II. DISCUSSION

A. CONSUMER ADVOCATE

The Consumer Advocate contends that adding the Archer D transformer in Phase 2 “will cause the Archer and Kamoku substations to be underutilized because while the combined normal load of the Archer and Kamoku substations may exceed the combined normal rating of

the existing three transformers, the current combined emergency rating far exceeds the combined normal load.” As noted by its Consultant, the existing three transformers have a combined normal rating of 249 MVA, and an emergency rating of 330 MVA. The 2007 combined load for Pukele and Archer Substations is 264MVA (246 MW) and grows to 277 MVA (268 MW) in 2022. As a result, the Consumer Advocate argues that “there appears to be no rationale other than seeking a ‘duplication of facilities’ at the Archer Substation for the installation of the additional transformer as proposed by HECO because the combined emergency ratings of the transformers currently in place are sufficient.”

HECO addressed this misconception in its rebuttal testimonies and in its oral testimonies at the hearing, which are neither discussed nor addressed by the Consumer Advocate in its Opening Brief.²

Phase 2 of EOTP, involves the installation of three new underground 46kV circuits (Archer 45, Archer 47, and Archer 48) to connect a new 138-46kV, 80MVA transformer (the “Archer D” transformer) at Archer Substation to three existing 46kV circuits (Pukele 7, Pukele 6 and Pukele 5) terminating at the Pukele Substation. HECO is proposing to install three new underground circuits from the Archer Substation connecting to the existing Pukele 5, 6 and 7 circuits served by the Pukele Substation. The three new 46kV circuits can be viewed as

² Some of the subjects addressed in the Consumer Advocate’s Opening Brief do not take into consideration information presented in HECO’s rebuttal testimonies. For example, in discussing the routing, location, configuration and construction concerns, the Consumer Advocate claimed that “[t]he concern that exists, however, include a consideration of current or possible City & County of Honolulu regulations, policies and ordinances that may require paving streets from curb-to-curb rather than just over installed duct lines While these concerns may not result in significant delay, there will be added costs.” CA OB at 15 (citing CA-T-1 at 124) (footnote 15 omitted). However, by the time HECO filed its rebuttal testimonies, the City’s current policy for trenching work on City owned or maintained roadways was that repaving of the trench width plus an additional one foot on each side for a trench aligned horizontally to the travel way was required, and that curb-to-curb repaving was no longer required. HECO OB, Exhibit “A” at 10 (citing HECO’s rebuttal testimony and Earlyne Oshiro’s live testimony at the evidentiary hearing). Exhibit “A” (page 10) to HECO’s Opening Brief discussed the City and County of Honolulu’s (“City”) changing position concerning its curb-to-curb repaving policy, and that the City’s policy had changed several times since the filing of the Application on December 18, 2003.

extensions of existing Pukele circuits making connections to the Archer Substation. If the transmission lines feeding the Pukele Substation were unavailable, an automatic transfer scheme would initiate, which would open and close switches at the Archer and Pukele Substations and transfer the rest of the Pukele Substation load (that was not transferred or subject to automatic transfer as a result of Phase 1) to Archer substation.

HECO will need to install the 138-46kV transformer at the Archer Substation (the “Archer D transformer”) to prevent transformer overloads that could occur when using the 46kV system to address the transmission contingency of loss of the two 138kV lines to the Pukele Substation.

The “analysis” done by Mr. Kiser, the Consumer Advocate’s Consultant, consisted simply of summing the total load on the Archer transformers after a Pukele Substation outage, and comparing this to the total emergency ratings of the three transformers.

The analysis was incomplete and results in an incorrect conclusion, because the simplified calculations can only be used for this purpose if the transformers at the Archer Substation were installed in a network configuration. Review of the 46kV switching diagram provided in response to CA-IR-15 shows that HECO’s distribution substations, including the Archer Substation, are not networked. Each transformer serves the load for specific 46kV circuits under normal and N-1 46kV contingencies. HECO RT-4 at 66.

In other words, Mr. Kiser did not consider that the 80 MVA transformers do not feed into a common network bus, and that each 80 MVA transformer has designated 46kV circuits transporting the power from the 80 MVA transformer to the distribution substations. For instance, Archer A transformer feeds the Archer 41 and the Archer 42A circuit. The Archer B transformer feeds the Archer 43 and Archer 44A circuits. The Archer C transformer feeds the

Archer 46 and future Archer 45 circuit. HECO RT-4 at 66; see HECO's Opening Brief, Exhibit "C".

In response to CA-RIR-35, HECO provided an illustration in order to show why the Archer D transformer was required. CA-RIR-35 shows two scenarios and both scenarios look at the load on the Archer transformers under the Pukele Substation Contingency. The first scenario assumes all of the proposed facilities for the 46kV Phased Option are installed with the exception of the Archer D transformer. The loads on each of the three Archer transformers and on the Kamoku transformer are shown. The two boxes outlined in red highlight that the load on the Archer C transformer will exceed its normal rating and the load on the Archer A transformer will exceed its emergency rating, even if all of the Archer transformers are in service. Scenario 2 shows the loads on each of the transformers with the Archer D transformer, and the loads will not exceed either the normal or emergency limits of the transformers for the year studied. This analysis was performed for forecasted load in 2009, which is the year Phase 2 is expected to be installed. It is expected that loads will continue to increase from 2009 which will increase the need for the Archer D transformer. Tr. (11/07) at 128-29 (Ishikawa).³

Page 4 of Exhibit "C" to the Opening Brief is a table from the response to CA-RIR-35, which shows loads for Archer transformers and Kamoku transformers in the year 2009 under two scenarios. The first scenario (tabulated in the first column of data) is based upon having only the three existing transformers at Archer Substation upon completion of the Kamoku 46kV Underground Alternative - Expanded project. The second scenario (tabulated in the second column of data) is based upon having a fourth transformer at Archer Substation (Archer D) upon completion of the Kamoku 46kV Underground Alternative - Expanded as proposed. The 2009

³ HECO OB, Exhibit "C" at 2, 4.

load demand served by each 46kV circuit was included in the file “dp09_eotp46ph2_emerg.raw” provided in response to CA-IR-11. Under the first scenario, the table shows (assuming no 46kV subtransmission contingency, i.e., where all three transformers at the Archer Substation are in service) that if HECO loses the Pukele Substation and all its load is transferred to Archer Substation, there will be loads on the three Archer Substation transformers that exceed both the normal (83 MVA) and emergency (110 MVA) transformer ratings of Archer A and the normal (83 MVA) rating of Archer C. In contrast, under the second scenario with the Archer D transformer, there is no exceedence of either the normal or the emergency rating on any of the transformers under the same outage conditions (loss of Pukele Substation, transfer of its load to Archer Substation, and all Archer transformers in service). Thus, the table shows that HECO will require the Archer D transformer in order to prevent overloading Archer Substation in the situation where there is a loss of the Pukele Substation.

In theory, engineering alternatives to installing the Archer D transformer could include:

1. Conversion of Archer Substation to a network configuration of the 46kV bus.
2. “Rebalancing” the circuits among the three existing transformers by relocating bus breakers on the existing 46kV bus.
3. Transferring the remaining Pukele Substation load to Kamoku Substation instead of to Archer Substation.

(See HECO Drawing 21852, 46kV Single Line Diagram submitted in response to CA-IR-15.)⁴ It should be noted that schedule and permitting issues for these hypothetical alternatives would have to be taken into account, which might preclude one or more of these hypothetical alternatives.

The addition of a fourth transformer at Archer Substation is the preferred alternative to

⁴ HECO’s testimonies, information responses and Opening Brief also discussed the possibility of and problems inherent in reducing the load on the Archer transformers by shifting Pukele Substation load to other substations, such as the Koolau substation.

provide backup to the remaining Pukele Substation load upon the loss of both Koolau-Pukele 138kV transmission lines. It is the preferred over the hypothetical alternatives to accomplish this because:

1. Generally, additional costs would be required to reconfigure a substation into a network configuration, because the 46kV busses would need to be robust enough to accommodate the current flow for the multiple circuits connected to a network of three transformers. Converting Archer Substation to a network configuration also would require, at a minimum, extensive modification of the substation structure and replacement of equipment (since it is an indoor Gas Insulated Switchgear substation⁵). Unlike conventional, outdoor air-insulated switchgear substations fed with overhead lines, the 46 kV interconnecting circuits, busses, breakers, and switches at Archer Substation cannot easily accommodate design changes because each component of the substation is located in a specifically configured bay. In addition, the coordination between the building as constructed and the installed equipment layout was preplanned into the original substation design and construction. As such, although it may be possible to accommodate design changes, extensive physical modifications to the substation equipment and the building would be required and the physical space within the substation may be insufficient. Such a conversion would cost substantially more than the cost of the Archer D transformer. Further, this conversion would require a prolonged outage of the Archer 46kV bus, which would result in loss of service to Archer Substation, Kewalo Substation, and Makaloa Substation 12kV loads (no service to the Honolulu area roughly bound by Kalakaua, Keamoku, Nehoa, Prospect, Ward, Beretenia, Cooke, Kapiolani, Piikoi, and Ala Moana Streets) for many months if the conversion were to be accomplished without the building of a new replacement substation.
2. Rebalancing circuits among the three existing transformers would require, at minimum, extensive modification to the layout of the Gas Insulated Switchgear equipment within the substation and considerable modification to the structure in order to relocate 46kV bus breakers. This conversion, like the network conversion, is estimated to cost many times more than the cost of the Archer D transformer. In addition, this modification would require a prolonged outage of the Archer 46kV bus, which would result in loss of service to Archer Substation, Kewalo Substation, and Makaloa Substation 12kV loads (i.e., there would be no service to the Honolulu area roughly bound by Kalakaua, Keamoku, Nehoa, Prospect, Ward, Beretenia, Cooke, Kapiolani, Piikoi, and Ala Moana Streets) for many months.
3. Transferring Pukele Substation loads to Kamoku Substation instead of Archer

⁵ The reasons for installing the Archer Substation utilizing SF-6 Gas Insulated Equipment in an enclosed building were addressed in Docket No. 9933. See Decision and Order No. 6139, issued October 7, 1988, in which the Commission approved the Archer Substation project.

Substation would still require the addition of a new 138-46kV transformer at Kamoku Substation and the installation of a new 46kV circuits from the Kamoku transformer to connect to the Pukele 5, Pukele 6, and Pukele 7 circuits.

(See HECO Drawing 21852, 46kV Single Line Diagram submitted in response to CA-IR-15.)

The Consumer Advocate suggests that “[i]ssues that may arise related to necessity or reasonableness of costs for this improvement [i.e., the Archer D transformer] should be raised by HECO and supported with current data in the next general rate case proceeding following the inservice date of the instant proposed EOTP.” CA OB at 18.

On the contrary, issues regarding the need for the Archer D transformer must be addressed in this proceeding. It does not make sense for HECO to proceed with Phase 2 until the Commission determines whether the Archer D transformer should be included in Phase 2. Moreover, installation of Phase 2 without the Archer D transformer would have limited benefit and would create a substation reliability concern. As shown in HECO’s response to CA-RIR 35, installation of the three new 46kV circuits, which are included in Phase 2 to transfer the remaining Pukele Substation load to Archer Substation upon the loss of both Koolau-Pukele 138kV lines, could result in an overload of the Archer A transformer beginning in 2009 if there is a loss of the Pukele Substation. If the Archer A transformer was allowed to overload, permanent damage could occur resulting in either immediate loss of the transformer, or a significant loss of life of the transformer (increasing the risk of a sudden loss in the future, before it reaches the end of its expected useful life). If the Archer A transformer was to fail, primary 46kV power to Piikoi 3, Piikoi 4, Kewalo 2, and Archer 1 transformers would be lost. The loads served by these four transformers would need to be switched to their backup source and, thus, these loads would lose backup redundancy and would be at greater risk of an outage until a replacement transformer is manufactured and installed. A replacement 138-46kV

transformer could take up to a year to manufacture and install.

B. LOL

1. Introduction

In LOL's Opening Brief,⁶ LOL takes the position that other, non-transmission options (e.g., renewable energy, upgrades to distribution systems, distributed generation) are feasible and preferable options. LOL's contentions should be disregarded, as LOL has not provided any reliable, substantial and probative evidence in the record concerning the cost, feasibility and timing of its alleged alternatives, or demonstrated the extent to which they would address the East Oahu transmission problems. For example, as discussed below, LOL did not provide any evidence concerning the cost of installing the alternatives, the costs of operating and maintaining the alternatives, the permitting and approvals that are necessary for the alternatives, how long it would take to implement the alternatives (including obtaining permits and approvals), whether there is suitable space available to install such alternatives, and the types of facilities that would be needed to interconnect the alternatives to HECO's grid.

On cross-examination, LOL's witness, Henry Curtis, acknowledged that in order to consider the viability of an alternative to the EOTP, LOL would need "complete information" concerning the alternative. Tr. (11/08) at 252 (Curtis). LOL certainly did not present "complete information" with respect to its alleged alternatives to the EOTP. For example, LOL did not propose any specific areas in the area served by the Pukele Substation where individual wind turbine generators could be installed. Mr. Curtis noted that "the area by Black Point, both touching the shoreline and heading off the coast" was a location with "high wind levels", but

⁶ The certificate of service to LOL's Opening Brief was dated January 19, 2006, and certified that LOL's Vice President for Consumer Affairs served copies of LOL's Opening Brief on the parties on January 19, 2006. HECO received a copy of LOL's Opening Brief on February 13, 2006, which was the due date.

acknowledged that LOL did not have “sufficient information” and has not conducted any economic analysis of offshore wind farms. See Tr. (11/08) at 250-51, 253-54 (Curtis). In addition, Mr. Curtis acknowledged that the seawater air conditioning systems referred to in LOL’s testimony would result in an environmental assessment being conducted, but that he did not have any information concerning a schedule that included the permitting activities required to install such systems or an estimate of the time that could be required to install such systems. Tr. (11/08) at 253 (Curtis).

Further, LOL completely ignores the timing issues concerning the East Oahu transmission problems. See, e.g., HECO OB at 17-28, Exhibit “B” at 1-17. For example, the Koolau/Pukele Line Overload Situation is estimated to occur in 2006 (based on day peak data). This situation can already occur during the evening peak period if the planned or unplanned outage of one of the three lines serving the Koolau substation extends into the evening peak period, particularly during the second half of the year when the evening peak loads are highest. HECO OB at 28, Exhibit “B” at 11. LOL does not even discuss the length of time it will take to implement the alternatives that LOL suggests in its opening brief.

The lack of evidentiary support in LOL’s brief is illustrated by the conclusions in LOL’s brief regarding wind and wave power, and the complete absence of any statements (much less evidence) characterizing the amount of the resource available, the location of the generation that would take advantage of the resource, the cost of developing the resource, the permits and time frame required to develop the resources, the method and cost of “firming up” the power generated from these resources, and the manner in which development of the resources would eliminate the need for the EOTP (since wind and wave generated electricity must still be transmitted and delivered to customers). With respect to wind, LOL simply asserts that “Oahu

has strong wind potential in several on-shore sites and some off-shore sites. Micro-wind facilities (0-2 KW) offers an exciting new approach.” LOL OB at 42. With respect to wave power, LOL simply asserts that: “Oahu can provide most of its electrical needs through off-shore tidal (buoy) devices.” LOL OB at 43.

In contrast, HECO provided extensive, detailed studies and testimonies that demonstrate that the non-transmission options are not viable, cost-effective alternatives to address the problems addressed by the EOTP.

2. HECO’s Analysis Of Alternatives

LOL claims that HECO used “scare tactics” to justify the EOTP and alleges that HECO did not conduct a “real alternatives analysis”. See LOL OB at 19-20.⁷

LOL’s claim concerning the alleged absence of “a real alternatives analysis” should be disregarded as it ignores the facts. Detailed studies were conducted that examined options to address the transmission problems. HECO examined options that might address all of the East Oahu transmission problems (i.e., Koolau/Pukele Overload Situation, Downtown Overload Situation, Pukele Substation Reliability Concern, and Downtown Substation Reliability Concern) collectively and options that might only address the Koolau/Pukele Overload Situation.

In 1995, CH2M Hill (HECO’s contractor for the EIS for the proposed partial overhead/partial underground Kamoku-Pukele 138kV Transmission line), with input from HECO and the Community Advisory Committee established for the project in early 1993, conducted a review and analysis of alternatives to a 138kV transmission line between the Kamoku and Pukele Substations. The 1995 CH2M HILL Alternatives Study was included in the

⁷ At the evidentiary hearing, LOL’s witness agreed to put page numbers on its documents. Tr. (11/08) at 251 (Curtis). However, LOL’s Opening Brief does not contain page numbers. As a result, the page references to LOL’s Opening Brief start with page 1 being designated as the first page following the cover page and continuing numerically until the last page (page 53).

Revised Final EIS (in Volume 2) as Appendix C1. (Volumes 1A, 1B, 2 and 3 of the Revised Final EIS were included as Exhibit 4 to the Application.) (This study also evaluated a number of 138kV and 46kV line alternatives to installing a 138kV transmission line between the Kamoku and Pukele Substations.) The study was updated in April 2000, and the update is contained in Section 10-A of the Revised Final EIS (in Volume 1A). The study update reflects the results of a Review of the Distributed Generation Alternatives to the Kamoku-Pukele Line (“DG Alternatives Study”) completed by HECO in March 2000. The results of the 1995 Alternatives Study, as updated in 2000, are described on pages 3-49 through 3-62 of the Revised Final EIS. HECO OB at 55-56.

The 1995 Alternatives Study, as updated in 2000, reviewed the feasibility and practicality of the installation of generating facilities in the Koolau/Pukele service areas that use renewable resources, the implementation of such large amounts of demand side management and load management measures, and the installation of substantial amounts of distributed generation (“DG”) in the Koolau/Pukele service area to displace the need for a 138kV transmission line connecting the Pukele and Kamoku Substations. HECO OB at 56.

In general, the 1995 Alternative Study, updated in 2000, evaluated alternatives that addressed the four East Oahu transmission problems collectively. Some of the options considered to address all of the East Oahu transmission problems collectively were: (1) live line maintenance (for which a separate study was completed), (2) renewable resources, (3) DG, and (4) DSM and load management. See HECO OB at 57-64. The study concluded that, for reasons related to cost, feasibility, practicality and effectiveness, the transmission line was the preferred alternative. HECO OB at 56, 57-64.

HECO also analyzed in more detail the possible options (other than constructing a new

138kV transmission line, or new 46kV sub-transmission circuits) for addressing the Koolau/Pukele Overload Situation, even if the options would not resolve the Pukele Substation Reliability Concern. The options analyzed include increasing the current carrying capacity of existing lines (at least for planning purposes), and reducing the Koolau/Pukele service area load (or peak load) by targeting additional DSM, load management, DG and combined heat and power (“CHP”) system penetration in the service area (beyond that expected to result from current programs and efforts). The analysis was included in the study finalized by HECO’s Planning & Engineering Department in December 2003 entitled “East Oahu Transmission Project: Options to the Koolau/Pukele Transmission Line Overload Problem” (“Koolau/Pukele Overload Options Study”) (this study was included as Exhibit 6 to the Application). HECO OB at 56-57, 64-67.

LOL also claims that HECO did not examine the “primary” or “secondary” ways to address the reliability concerns of customers impacted by the Koolau/Pukele Overload Situation. LOL goes on to claim that the better alternatives involve an upgraded distribution system, and/or the installation of back up generators at customer sites. LOL OB at 19-21.

LOL’s contentions are not credible and not supported by any analyses. LOL did not present any witness with any education, training or experience in utility transmission planning. In contrast, HECO presented detailed studies performed by individuals with education, training and experience in transmission planning.

In addition, the Koolau/Pukele Overload Situation is a problem that increases the risk of a catastrophic type power outage. A catastrophic type of power outage is one where disturbances on the system could potentially throw the entire system into instability. See HECO OB at 26, Exhibit “B” at 7. LOL’s proposed alternatives would not address the risk of a catastrophic type

power outage to the same degree as the EOTP.

LOL's claim also ignores that the Koolau/Pukele Overload Options Study was conducted to specifically look at alternatives that only address the Koolau/Pukele Overload Situation.

Moreover, as indicated above, LOL did not provide any specifics concerning its alleged alternatives to address the Koolau/Pukele Overload Situation (e.g., upgraded distribution system, installation of back up generators)⁸, such as the installed cost, the operating and maintenance costs, or the length of time to implement the alternatives. Such specific information is necessary in order to make an evaluation of an alternative. LOL's suggestion would not address the situation where both 138kV transmission lines serving the Pukele Substation (Pukele Reliability Concern) experience an outage. In this situation, the Waikiki area would still experience an outage in electricity service until one of the 138kV transmission lines to the Pukele Substation could be returned to service.

3. LOL's Comments Concerning HECO's Witnesses

The Commission's decision must be "supported by and in accordance with the reliable, probative and substantial evidence" in the record. H.R.S. §91-10(1). Lacking such evidence to support its unsubstantiated claims that there is a non-transmission alternative which is preferable and feasible (LOL OB at 3), LOL resorts to attacks on the expert witnesses that uniformly testified in support of the need for the project, and the limitations and/or inadequacies of the non-transmission options that were considered. HECO's expert witnesses on the need issues included Thomas Joaquin, Randy Pollock (whose testimony LOL neglected to attack), Shari Ishikawa and Andy Stewart (who testified on live working).⁹ LOL also attacked the Consumer Advocate and

⁸ See LOL OB at 20-21.

⁹ See LOL OB at 18-25, 29-30. LOL also attacked Kerston Wong, the EOTP Project Manager, although his testimony addressed the scope and background of and schedule for the project, rather than the need for the project. See LOL OB at 25-29.

its Consultant for relying on technical analysis and studies conducted regarding the need for the project, rather than on opinion surveys. See LOL OB at 30-35.

HECO's specific responses to a number of LOL's comments are discussed below.

HECO has not attempted to address each and every comment, which are uniformly lacking in merit, as a number of the comments do not even relate to this proceeding.

Shari Ishikawa

Ms. Shari Ishikawa sponsored the studies that examined the alternatives to the EOTP, and her testimonies discussed a number of the alternatives, including the findings in the March 2000 DG Alternatives Study and the 1995 Alternatives Study (as updated in 2000). LOL questioned a number of findings in these studies, including the finding that renewable resource generating plants were not a viable alternative for reasons that included the cost of the alternative. LOL OB at 23-25. LOL's contentions are not persuasive.

LOL provided no support for its challenge of the cost estimates. LOL simply argued that "[t]he cost estimates are inflated." LOL OB at 25. In contrast, HECO conducted a study that examined the cost of PV. HECO studied adding renewable energy to resolve the Koolau/Pukele Overload Situation. It was determined that approximately 47 MW of energy from renewable resources installed in the Koolau/Pukele service area would be required to in order to defer the Koolau/Pukele Overload Situation to 2023. HECO estimated that PV costs were approximately

HECO's other witnesses, including Mr. Wong, addressed the other issues listed in Order No. 20968. For example, Order No. 20968 listed issues concerning whether the "routing" and "location" of the project are reasonable (issue number 2) and whether the EOTP's proposed 46 kV lines should be placed underground (issue number 5), which were discussed by HECO witnesses, other than the "three HECO witnesses" referenced by LOL, including Ken Morikami (HECO T-7). Order No. 20968 also specified issues concerning comparing the EOTP to other transmission system alternatives when looking at factors such as the cost, construction impacts, and EMF (issue number 3). These subjects were discussed by HECO witnesses, other than the "three HECO witnesses" referenced by LOL, including Earlynne Oshiro (HECO T-9), Thomas Harrington (HECO T-8), Mike Silva (HECO T-10), Stuart Aaronson, M.D. (HECO ST-11B), Linda Erdreich, Ph.D. (HECO ST-11A), and William Bonnet (HECO T-11).

\$7,000 to \$10,000 per kW, which results in a capital cost of approximately \$329 million to \$470 million to achieve the 47 MW of generation that would be required to defer the Koolau/Pukele Overload Situation. Exhibit 6 to the Application (Koolau/Pukele Overload Options Study) at 58 & n.9.

In addition, LOL's contention concerning the diversity of the non-firm resources was unsupported and not persuasive. LOL OB at 25. The 1995 Alternatives Study (updated in 2000) stated that wind power and PV are intermittent generators and are not dispatchable. If there is no wind generation at the time of a potential overload condition on the 138kV transmission line supplying the Koolau/Pukele area, there will be no possibility of reducing the overload. See 1995 Alternatives Study (updated in 2000) at 10-11, 19-21.

LOL simply made an assertion that there would be sufficient diversity in the wind and solar resources in the Koolau/Pukele service area to make these intermittent resources be considered firm resources. However, LOL did not provide any support for this assertion, and did not attempt to show how it reached this conclusion. LOL also did not discuss whether the concept of diversity is sound in such a geographic area like the Koolau/Pukele service area.

LOL also questioned Ms. Ishikawa's testimony that characterized the capabilities of the estimated 39 to 52 MW of backup generators available in the Pukele transmission service area to provide power in the event of an outage. LOL OB at 22-23. LOL's contentions are misleading.

First, as noted in HECO's testimony cited by LOL, the amount of backup generators available in the Pukele transmission service area was an estimate that was developed based on discussions with vendors that supply diesel generators for emergency power to areas such as Waikiki business owners. See March 2000 DG Alternatives Study at 7; HECO T-4 at 69.

Second, as stated in HECO T-4 on page 69, emergency generators are typically sized to

provide power for elevators, emergency lighting, and other critical loads. The HECO testimony that LOL chose to quote did not include the reference to “other critical loads”. (HECO T-4, page 69 states “[t]he generator is typically sized to provide power for elevators, emergency lighting and other critical loads, and is not sized to completely serve the customer’s total load.”)

Third, as HECO explained in its direct testimony, customers with emergency generators only supply power for themselves, and are not able to provide power to other customers. In order to use emergency generators, the customer must isolate itself from HECO’s grid and start the emergency generator. See HECO T-4 at 69.

Kerstan Wong

LOL challenged the credibility of Kerstan Wong, the project manager for the EOTP, by attempting to characterize Mr. Wong as HECO’s subject matter expert on areas outside of Mr. Wong’s responsibility as the project manager for the EOTP. For example, LOL quoted testimony from the evidentiary hearing where Mr. Wong was asked questions concerning alternatives to the EOTP that were studied, and claimed that “Mr. Wong is not familiar with the project specifics” when Mr. Wong referred questions concerning the alternatives studied to the HECO witness that addressed the subject of alternatives in her testimony. See LOL OB at 26, 28-29.

LOL’s efforts to challenge the credibility of Mr. Wong are disingenuous at best. Mr. Wong is the project manager for the EOTP. His duties do not include an evaluation of the alternatives to the EOTP. Mr. Wong was not the witness responsible for discussing alternatives to EOTP. Mr. Wong’s testimonies generally provided (1) a description of the EOTP, (2) a historical background of the EOTP, (3) a description of the alternatives that were presented to the community for public input in 2003 to address the East Oahu transmission concerns (i.e.,

Kamoku-Pukele 138kV Underground Alternative (via Palolo), Kamoku 46kV Underground Alternative, and Kamoku 46kV Underground Alternative – Expanded), (4) the permitting and engineering schedules developed for planning purposes for these alternatives, and (5) the permitting and engineering schedule for the EOTP. See HECO T-2, HECO T-6, HECO ST-2, HECO ST-6, HECO RT-2, and HECO RT-6.

Accordingly, LOL's claim that "Mr. Wong is not familiar with the project specifics", based on an irrelevant excerpt from the transcript in this docket, is hardly persuasive. The line of questioning from the evidentiary hearing in this docket involved alternatives to the EOTP (i.e., a CHP unit in Pauahi Towers and seawater air conditioning). See Tr. (11/07) at 48-49 (Wong). The questions did not involve specific questions about the EOTP itself.

Second, HECO presented a separate witness, Shari Ishikawa, who discussed the alternatives to the EOTP, including the non-transmission alternatives, such as DSM and DG. In response to cross-examination from LOL, Mr. Wong repeatedly stated that questions concerning the alternatives to the EOTP should be answered by Ms. Ishikawa.¹⁰

Andy Stewart

LOL commented on the testimony of Andy Stewart, HECO's consultant who was part of the team that conducted the study to evaluate whether live line maintenance (also known as live working ["LW"]) could be an alternative to address all of the East Oahu transmission problems. See LOL OB at 29-30. LOL's comments ignore the fact that (1) HECO had a thorough LW study conducted (submitted as Exhibit 7 to the Application), in which one of the conclusions was that LW does not represent a practicable work method for a significant portion of HECO's maintenance needs, and (2) the LW study was conducted by a group of individuals who are

¹⁰ LOL did not ask Ms. Ishikawa many of the questions that it asked Mr. Wong concerning the alternatives to the EOTP.

experts in areas such as LW, inspection, maintenance and upgrading of transmission lines, and are familiar with HECO's transmission system and HECO's past LW activities.

HECO retained a consultant, EDM International, Inc. ("EDM"), to review the potential for, and practicability of, doing LW on Oahu. EDM was retained to perform this assessment because of EDM's expertise related to overhead transmission system inspection and maintenance. EDM's Project Team included (1) Andy Stewart of EDM (Mr. Stewart is the President of EDM, whose experience encompasses research and development, consulting and training activities associated with the inspection, maintenance, and upgrading of thousands of miles of lines, who has authored numerous publications and presentations on these topics, and currently serves as the Chairman of the Institute of Electrical and Electronics Engineers ("IEEE") Task Force on the Management of Existing Overhead Lines)¹¹, (2) Dr. George Gela of EPRISolutions, Inc. (Dr. Gela is a recognized world expert on LW and had primary responsibility for assessing the feasibility of using LW based on certain key technical criteria)¹², and (3) Thomas Harrington (Mr. Harrington has provided construction management and project management services to HECO for many years and is very familiar with HECO's 138kV transmission system) and Louis Benedict (Mr. Benedict was the supervisor of the LW personnel

¹¹ Mr. Stewart's educational background and experience is set forth in HECO-500 and the response to LOL-IR-37.

¹² Dr. Gela obtained his Ph.D. in Electrical Engineering from the University of Toronto in 1980. Prior to joining EPRISolutions in 1990, he worked in a variety of capacities in the high-voltage arena. He provided consulting services, worked in the manufacturing industry and was an Assistant Professor in Electrical Engineering at Ohio State University and a Visiting Professor at the University of Toronto. Since joining EPRISolutions, one of his focal areas of consulting and research and development has been LW. He has established himself as a world leader in this area. He is the lead author of several documents on LW that are used by utilities throughout the world, including references on application of LW techniques, field guides on LW methods and designing lines to facilitate LW, and reference information on safe working conditions. He has also been the principal investigator on several research projects directed at developing new LW techniques and tools for performing energized maintenance and protecting line workers. Dr. Gela is actively involved in several professional organizations including IEEE, the International Council on Large Electric Systems, and the International Electrotechnical Commission, where he is the International Chairman of the technical committee on LW. HECO T-5 at 5-6.

at HECO prior to retiring in the late 1990s) of TLH Management Services Inc. EDM was asked to analyze in more detail the potential for doing LW on the 138 kV transmission lines serving the Koolau and Pukele substations, since the Koolau overload situation and the Pukele reliability concern generally (although not exclusively) arise when a transmission line has to be taken out of service (i.e., be de-energized) for maintenance. See Tr. (11/7) at 145-46 (Stewart); HECO T-5 at 5.

EDM's evaluation of LW on HECO's system encompassed consideration of not only what is theoretically possible but also what is practicable. Tr. (11/7) at 147 (Stewart).

The results of EDM's LW evaluation are included in the report entitled "Evaluation of the Applicability and Practicability of Live Working (LW) Methods for Hawaiian Electric Company, Inc.'s (HECO) 138 kV Transmission System" (December 2003), which is attached as Exhibit 7 to the Application in this proceeding. HECO T-5 at 6; Tr. (11/7) at 146 (Stewart).

The EDM Project Team's key findings, conclusions and recommendations are:

-
- (1) HECO exercised diligence and prudence in the formulation and evolution of its LW program.
 - (2) LW does not represent a practicable work method for the majority of the maintenance needs of the lines serving the Koolau and Pukele Substations due to the constraints imposed by climate, facility conditions and access. Therefore, HECO should consider system additions/changes to enhance the ability to obtain hold-offs on the lines serving these substations.
 - (3) There are other portions of HECO's system where LW is not a practicable solution for maintenance due to line or structure configurations, mechanical/structural conditions, and deterioration of components.
 - (4) The improved ability to schedule outages that occurred with the addition of key new 138kV lines to the system in the mid-1990s diminished the need for LW practices on much of the 138 kV system because de-energized maintenance techniques could be utilized on a line without creating an unreasonable impact on system reliability in the event of a concurrent unplanned/forced outage on another line.
 - (5) Significantly more work can be accomplished on HECO's system in a given period of time using de-energized maintenance techniques than LW techniques. In addition, when

large-scale replacement of components is warranted, scheduling de-energized work represents a more cost-effective solution than LW work due to factors including labor efficiencies.

- (6) Currently, there are a few areas of HECO's system and situations that could continue to benefit from the availability and use of LW. (For example, in the Barber's Point area, the AES-CEIP and the Kalaeloa-Ewa Nui transmission lines could benefit from LW.) Therefore, HECO should consider reestablishing the basic LW working skills for use on a limited basis with the caveat that HECO weigh the economics to determine whether the costs for reestablishing and maintaining the program can be justified. Tr. (11/7) at 148-51 (Stewart); HECO T-5 at 8-9, 20-21; Exhibit 7 to the Application.

EDM's evaluation sought to balance consideration of theoretical possibilities with what is safe and reasonable. When evaluating both the applicability and practicability of LW, there are technical considerations such as the adequacy of clearances between energized and grounded components, and the strength of structures that must be considered. However, a thorough assessment must also account for factors such as weather, terrain, and other environmental conditions, access by heavy equipment, facility conditions, operational constraints, and personnel requirements to make an informed decision about whether LW is reasonable, practicable and cost-effective for a specific task, facility, system and/or situation. Tr. (11/7) at 147-48 (Stewart); HECO T-5 at 8.

In addition, LOL's comments concerning Mr. Stewart's testimony do not alter the conclusions of the LW evaluation, one of which was that LW does not represent a practicable work method for the majority of the maintenance needs of the lines serving the Koolau and Pukele Substations due to the constraints imposed by climate, facility conditions and access. Further, LOL did not present evidence to demonstrate that LW is a practicable work method for the maintenance needs of the lines serving the Koolau and Pukele substations.

C. CONTENTIONS THAT ARE NOT PERTINENT TO THE ISSUES IN THIS PROCEEDING

1. Consumer Advocate

The Consumer Advocate contended that the inclusion of the planning and permitting costs incurred by HECO (and related allowance for funds used during construction [referred to as “AFUDC”]) prior to the Board of Land and Natural Resource’s (“BLNR”) decisions denying HECO’s application for a Conservation District Use Permit (“CDUA”) should not be included in HECO’s cost estimate of the EOTP. See CA OB at 6-7, 15-17.

The Consumer Advocate’s contentions regarding the pre-2003 planning and permitting costs and related AFUDC are not pertinent to the issues in this docket and should be disregarded. First, HECO and the Consumer Advocate stipulated, among other things, that (1) “[i]n this proceeding, a determination should be made as to whether HECO should be given approval to expend funds for the East Oahu Transmission Project, provided that no part of the East Oahu Transmission Project may be recovered from ratepayers unless and until the Commission grants HECO recovery in a general rate increase proceeding” and (2) “[a]ny issue as to whether the pre-2003 planning and permitting costs, and related AFUDC should be included in the costs of the instant project has been reserved to and may be raised in the next general rate increase proceeding (or other proceeding) in which HECO seeks approval to recover the East Oahu Transmission Project costs.” Joint Motion for Approval of Stipulation and Stipulation (“Stipulation”) filed October 28, 2005 by HECO and the Consumer Advocate at 5.

In addition, the Commission issued Order No. 22104 on November 4, 2005, in which the Commission approved, in part, the Stipulation and the agreements contained therein. The Commission accepted the withdrawal of the pre-2003 planning and permitting costs issue from this proceeding, but denied HECO and the Consumer Advocate’s request to withdraw from the

record certain portions of their filed testimonies, exhibits, and responses to IRs to this issue.¹³

In accepting the withdrawal of the pre-2003 planning and permitting costs issue from this proceeding, the Commission stated that “[t]he commission finds that the withdrawal of the Pre-2003 Planning and Permitting Costs from its consideration in this proceeding is consistent with General Order No. 7, and aids in the simplification and expeditious completion of this proceeding.” Order No. 22104 at 7. Specifically, the Commission stated:

The commission agrees that in this proceeding, which was initiated by an Application filed pursuant to paragraph 2.3.g.2 of the commission’s General Order No. 7, Standards of Electric Utility Service in the State of Hawaii (“General Order No. 7”), the commission should determine whether to approve HECO’s request to commit funds for the East Oahu Transmission Project. The commission acknowledges that approval for commitment of funds for capital expenditures generally does not involve the identification of the amounts that may be included in rate base in a general rate case once the project is completed, and that a utility’s rates generally are not adjusted to reflect changes in its revenue requirements due to an increased rate base until there is a general rate case. The commission believes that a rate case proceeding is the most appropriate kind of proceeding for examination of costs for possible inclusion in rate base and for the adjustment in rates based upon changes in revenue requirements as a result of the increase of rate base. Therefore, the detailed examination of the Pre-2003 Planning and Permitting Costs and the identification of those costs for possible inclusion in rate base would more appropriately be completed in a rate increase proceeding, rather than in an application for approval to commit funds for a capital expenditure. The commission further acknowledges that HECO and the Consumer Advocate were the only Parties that addressed the issue of the Pre-2003 Planning and Permitting Costs during the discovery phase of this proceeding.

The commission finds that the withdrawal of the Pre-2003 Planning and Permitting Costs from its consideration in this proceeding is consistent with General Order No. 7, and aids in the simplification and expeditious completion of this proceeding.

Order No. 22104 at 6-7.

The Consumer Advocate contended that one of the reasons for not recommending

¹³ Specifically, the Commission granted the Stipulation in its entirety with the exception of Paragraph 3 on Page 5 of the Stipulation, which was denied.

approval of the inclusion of the pre-2003 planning and permitting costs is that HECO allegedly did not properly plan or apply proper planning criteria when pursuing the partial overhead/partial underground Kamoku-Pukele 138kV Transmission Line (via Waahila Ridge) from 1991 to 2002. The Consumer Advocate further contended that HECO should have been focused on implementing 46kV projects during this period. See CA OB at 16.

As the Consumer Advocate and HECO stipulated, and as the Commission ordered in approving the Stipulation in relevant part, cost recovery for the pre-2003 planning and permitting costs, and related AFUDC, included in the EOTP cost estimate will not be addressed in this proceeding, and the parties were directed to not present further evidence or to conduct cross-examination with respect to such cost recovery.¹⁴

As a result, HECO did not address this issue in its Opening Brief. In its Opening Brief, however, the Consumer Advocate does reiterate the objection stated by its Consultant to the inclusion of the pre-2003 planning and permitting costs in the cost of the project, before and after noting the stipulation. See CA OB at 16-17, citing CA-T-1 at 92-93. HECO presented extensive rebuttal testimony with respect to the contention that HECO should never have considered a

¹⁴ On October 28, 2005, the Consumer Advocate and HECO filed a Motion for Approval of Stipulation. In the Stipulation, the Consumer Advocate and HECO agreed that: “Any issue as to whether the pre-2003 planning and permitting costs, and related AFUDC should be included in the costs of the instant project has been reserved to and may be raised in the next general rate increase proceeding (or other proceeding) in which HECO seeks approval to recover the East Oahu Transmission Project costs.”

The Commission issued Order No. 22104 on November 4, 2005, in which the Commission approved, in part, the Stipulation and the agreements contained therein. The Commission accepted the withdrawal of the pre-2003 planning and permitting costs issue from this proceeding, but denied the request to withdraw from the record certain portions of their filed testimonies, exhibits, and responses to IRs to this issue. In denying the request to withdraw certain portions of the record, the Commission stated that it “intends to retain intact as public record, the filings made by the Parties in this docket, but will neither accept additional evidence relating to this issue, nor decide the issue of Pre-2003 Planning and Permitting Costs in this proceeding.” Order No. 22104 at 7. At the commencement of the evidentiary hearing, the Commission also noted that the parties would not summarize or conduct cross-examination regarding the issue of Pre-2003 Planning and Permitting Costs. Tr. (11/7) at 6-7.

138kV line solution to the East Oahu transmission problems, and will not summarize or address that evidence here, since the issue has been deferred to another docket. (For example, Exhibit A to the Stipulation contains references to HECO's rebuttal testimonies and responses to RIRs that respond to the Consumer Advocate's allegations.)

The Consumer Advocate also presents a new argument in its Opening Brief that was not supported by testimony presented in the docket. The Consumer Advocate argues that the prior efforts to install a 138kV line using the Waahila Ridge route was a totally distinct project that has now been abandoned. CA OB at 16-17.

Given the lack of testimony on this point, it would be inappropriate and unfair¹⁵ for the Consumer Advocate to present this argument in its Opening Brief. Given the stipulation and the Commission's order, it is also improper for the argument to be raised in this proceeding.

Since the Consumer Advocate has raised the argument, however, the Commission should be made aware of some of the arguments and evidence that would be presented at the appropriate time in response to such a claim.

First, HECO has never abandoned the project to address the East Oahu transmission problems, although the name and scope of the project have changed over time. The project now uses the 46kV system to link the downtown Substations with the Pukele Substation, instead of a 138kV line between the Kamoku and Pukele Substations, in order to address the same transmission system overload situations and transmission substation reliability concerns that were identified in the 1991/1992 studies.

Before selecting the partial underground/partial overhead 138 kV line option (using Waahila Ridge) to address these problems, HECO also considered (1) other options connecting

¹⁵ HECO never had the opportunity to present rebuttal or conduct cross-examination regarding this accounting claim, since it was raised for the first time in the Consumer Advocate's Opening Brief.

the Kamoku and Pukele Substations with a 138 kV line (including all overhead and all underground options), (2) other 138 kV line options, and (3) options using the 46 kV system, as well as (4) non-transmission options. See HECO OB at 42-43; Exhibit D (Transmission Planning) to HECO OB at 8 (Studies Supporting Need for the EOTP); HECO OB at 55-64.

After the preferred option was no longer available, HECO again considered (1) options connecting the Kamoku and Pukele Substations with an all underground 138 kV line, (2) other 138 kV line options, and (3) options using the 46 kV system, as well as (4) non-transmission options. See HECO OB at 44-47; Exhibit D (Transmission Planning) to HECO OB at 9 (Studies Supporting Need for the EOTP); HECO OB at 55-68. For the reasons summarized in the Opening Brief, the Kamoku 46kV Underground Alternative – Expanded option, to be implemented in two independent phases, is now the preferred alternative. It is rather disingenuous to suggest that the “earlier” project has been abandoned simply because HECO has now selected an option using 46kV line instead of a 138kV line to address the East Oahu transmission system problems.

The project continuity also is evidenced by the continued use of the information and studies developed as a result of the earlier planning, permitting and public input process phases of the project. Studies such as the 1995 CH2M HILL Alternatives Study were cited by the Consumer Advocate’s Consultant, as well as by the Company, in support of the conclusions presented in this proceeding. See, e.g., HECO OB at 55-56; CA-T-1 at 113-18.

Moreover, even if HECO were to abandon the project in the future, which it does not intend to do, HECO should have the opportunity to seek recovery of the costs in a manner that did not require the costs to be immediately expensed (i.e., “written off”), as the Consumer Advocate appears to assume would be required.

A fundamental regulatory principle is that prudently incurred costs in the provision of electric service should be recoverable from ratepayers. In the case of capital projects, the incurred costs generally include (1) the costs of planning, designing and permitting the project, (2) the costs of material and equipment incorporated in the project, (3) the costs of constructing and testing the project, and (4) an allowance for funds used during construction (“AFUDC”).

Utilities need to plan and incur costs for potential projects, particularly major generation and transmission projects, many years before the need dates for the projects (which dates may change during the course of the projects). This is necessitated by the long lead times required for such things as land use approvals, siting, routing and environmental studies (which may involve time-consuming public input processes), the acquisition of land and land rights, regulatory approvals, the ordering of long lead time materials (which have to be manufactured and shipped to be available when construction starts), and the construction of the projects. Thus, substantial costs may be incurred by necessity a number of years before the need or completion dates for the projects (which may themselves change).

Under these circumstances, the incurrence of abandoned or cancelled projects is unavoidable in the utility business, and the related costs should be recoverable from ratepayers. For most projects, the costs for abandoned capital projects are charged to appropriate operating expense accounts, unless the costs result in items that have future value. Cost recovery is allowed by including a normal amount of expense in revenue requirements for ratemaking purposes for these types of cancelled or abandoned projects.¹⁶ (A long-standing distinction between the accounting treatment of projects “cancelled” before the commencement of construction and projects abandoned after the commencement of construction was eliminated

¹⁶ The amount included in revenue requirements is supposed to take into consideration an analysis of the historical experience at that time to determine a reasonable level of expenditures for canceled projects for rate setting purposes on a prospective basis.

pursuant to a Stipulation in HELCO's 2000 test year case.¹⁷⁾ In addition, if any of the items represent items that have future value (for example, assets that are useable on another capital project), the capital costs are transferred to the other project or accounts as appropriate.

Should a capital project with significant accumulated costs be abandoned, however, the utility would seek Commission approval for special accounting and ratemaking treatment as appropriate under the circumstances. These projects are addressed on a cases-by-case basis, since it is impractical to include an allowance in rates for the future cancellation of large projects, given the unpredictable nature of such cancellations.

2. LOL

LOL provides its characterization of some of the background to the EOTP. See LOL OB at 5-15. This portion of LOL's Opening Brief is not pertinent to the issues set forth in Order No. 20968, especially since Order No. 22104 approved, in part, the stipulation between HECO and the Consumer Advocate and the agreements contained therein. As previously discussed, by Order No. 22104, the Commission accepted the withdrawal of the pre-2003 planning and permitting costs issue from this proceeding.

LOL's specious comments on the reasons for the EOTP should simply be ignored. As the record thoroughly demonstrates, and as the Consumer Advocate agrees, the project is needed to address transmission line overload situations, and substation reliability concerns, not to "fire up HECO's bottom line"¹⁸ HECO not only "argues" that it has a "duty to provide reliable service",¹⁹ but takes its obligation to serve very seriously, and the East Oahu Transmission

¹⁷ See Letter dated and filed June 7, 2001 in Docket No. 99-0207, informing the Commission that, with respect to canceled projects, HELCO, as well as HECO and MECO, had implemented the settlement agreement between HELCO and the Consumer Advocate filed August 14, 2000.

¹⁸ See LOL OB at 8, 9-10. It may be appropriate to substitute rhetoric for studies and analysis in other forums, but that should not be the case in Commission proceedings.

¹⁹ See LOL OB at 11.

Project will enable it to more reliably serve its extensive East Oahu service area.

In addition, LOL's contentions concerning the historical events surrounding the creation of the 9.6 mile Halawa-Koolau 138kV line, 6.1 mile Koolau-Pukele #1 138kV line, 13.3 mile Waiau-Koolau 138kV line, and 6.1 mile Koolau-Pukele #2 138kV line are not pertinent to the issues in this docket. LOL OB at 5-6.²⁰ This historical discussion does not change the fact that if two lines providing power to the Pukele substation (i.e., Koolau-Pukele #1 and #2 lines) are both out of service, approximately 93% of the customers serviced from the Pukele substation will incur an outage. Most of HECO's customers in the area extending from Makiki to Waikiki, and from Koolau to Kaimuki, would be out of power until one of the two 138kV transmission lines could be restored to service. Until 2004, Hawaii was fortunate that the second of the two 138kV lines to Pukele substation had not tripped out of service while the other line was out for maintenance, or out of service due to a forced outage. The latter situation very nearly occurred in 1994 and did occur in 2004. See HECO OB at 28-29, and Exhibit "B" at 2-3.

III. CONCLUSION

Based on the foregoing and the entire record herein, HECO respectfully requests Commission approval to commit funds in excess of \$500,000 (currently estimated at \$55,644,000) for the EOTP, in accordance with the provisions of Paragraph 2.3(g)(2) of General Order No. 7.

²⁰ HECO noted the segmentation of the Halawa-Koolau-Pukele 138kV transmission line and Waiau-Koolau-Pukele 138kV transmission line in Exhibit "B" to its Opening Brief (page 2, footnote 1), citing the testimony of Ms. Ishikawa.

HECO proposes to place the 46kV lines underground that are being installed as part of this project. Pursuant to Section 269-27.6 (a) of the H.R.S., HECO respectfully requests that the Commission determine that the 46 kV lines shall be built “below the surface of the ground”

DATED: Honolulu, Hawaii, March 6, 2006.

A handwritten signature in black ink, appearing to read 'Thy Kikuta', written over a horizontal line.

THOMAS W. WILLIAMS, JR.
PETER Y. KIKUTA

Attorneys for
HAWAIIAN ELECTRIC COMPANY, INC.

CERTIFICATE OF SERVICE

I hereby certify that I have this date served a copy of the foregoing **REPLY BRIEF OF HAWAIIAN ELECTRIC COMPANY, INC.**, together with this Certificate of Service, by hand delivery and/or mailing a copy by United States mail, postage prepaid, to the following:

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